



When lunar landing became the Apollo objective in May 1961, the United States had only 15 minutes of manned flight experience in space and a tentative plan for a spacecraft that might be able to circumnavigate the moon. Requiring seven years of development and testing, the Apollo spacecraft not only flew to the moon, but also performed the first international space rendezvous.

The Apollo missions flew from October 1968 through July 1975. Americans witnessed the program's final return from the moon on flight 17 in December 1972, after a dozen men had made six successful explorations on the lunar surface.

Shortly thereafter, Skylab, using the basic Saturn launch vehicle and Apollo spacecraft hardware, sailed into earth orbit, supporting crews on research missions up to 84 days in length during 1973 and 1974.

On July 16, 1974, Launch Complex 39 was dedicated as a national landmark.

"Men began the first journeys to the moon from this complex," reads the site's commemorative plaque. "This was also the launch site of the Skylab program ... during which three crews of astronauts occupied the first space station 171 days."

Apollo passed from public view in July 1975, following the Apollo-Soyuz Test Project flight, flown by American astronauts and Russian cosmonauts.

During the Apollo years, historian Arthur Schlesinger noted that the 20th Century will be remembered, when all else is forgotten, as the century when man burst his terrestrial bonds.

Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

A vision for America's spaceport

The hum of activity in a modern airport is the result of years of experience, from air traffic control to grounds maintenance, cargo handling to airplane maintenance. The world has come to depend on flight operations that run smoothly and at reasonable cost.

Those are the same concerns that are being raised about a national spaceport. To find solutions, NASA, industry and academia have come together in the Vision Spaceport Project to create the tools needed for developing state-of-the-art spaceport architectures and space launch operations capabilities.

Key players in the space field — NASA, KSC, Boeing, Lockheed Martin-Michoud Space Systems, Science Applications International Corporation, Command and Control Technologies (CCT) — are working together as the Spaceport Synergy Team to create Vision Spaceport.

These organizations are cooperating under a Joint Sponsored Research Agreement (JSRA) to create the benchmarks, tools, basic model constructs and concept art that will drive the ultimate strategic plan and road map for Vision Spaceport.

At a figurative signing of JSRA on July 30 at KSC headquarters, the

team unveiled the annual plan.

Dave Shelton, project manager for Vision Spaceport, kicked off the gathering that included management and facilitators, stating: "When we started we had several challenges, among them a short schedule and limited resources. We found JSRA was the tool to work within the challenges, and in just over two months we have been able to get signed contracts with the partners. We have a new way of doing business and with it reached our first milestone: the agreement."

Carey McCleskey, technical

(See Vision, Page 6)

Leonardo arrives at KSC

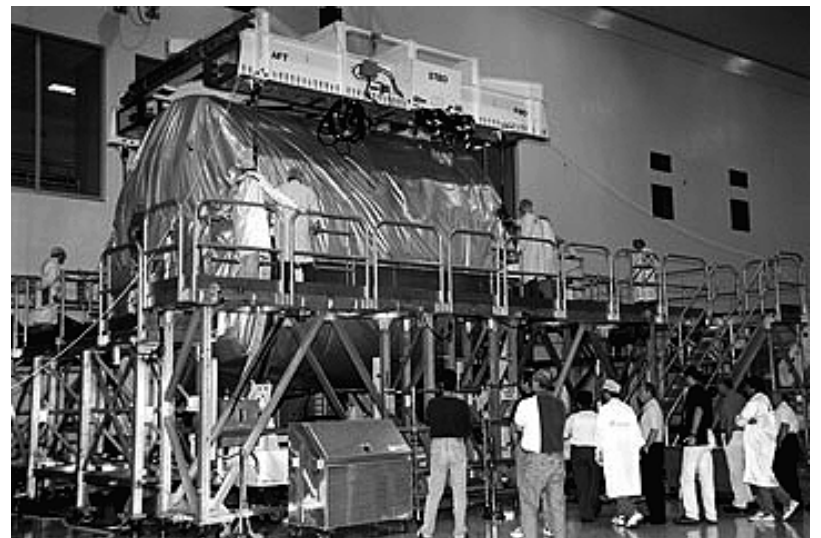
The Italian Space Agency's "Leonardo" Multi-Purpose Logistics Module (MPLM) destined to become part of the International Space Station has arrived at KSC for prelaunch processing, testing and integration.

The "Leonardo" MPLM arrived at Kennedy Space Center on Friday, July 31, by a special "Beluga" air cargo plane from the factory of Alenia Aerospazio in Turin, Italy.

This module, one of Italy's major contributions to the International Space Station program, is a reusable logistics carrier — the primary delivery system used to resupply and return station cargo requiring a pressurized environment. The cylindrical module is approximately 21 feet long and 15 feet in diameter, weighing almost 4.5 tons excluding up to 20,000 pounds of contents.

Launched in the Space Shuttle's payload bay, it will contain supplies, science experiments, spare parts and components for the International Space Station.

Once on orbit, it will be removed from the payload bay and docked



Boeing and Alenia Aerospazio technicians, above, and KSC personnel below watch as the first MPLM is secured on its workstand in the Space Station Processing Facility. The module is one of three from Alenia Aerospazio and will provide storage and additional work space for up to two astronauts when it is docked to the ISS.

to the space station using the remote manipulator arm of either the Shuttle or the station. During each MPLM mission, supplies and scientific experiments are exchanged for items to be returned to earth including completed experiments, equipment for repair, or trash and recyclables.

The Leonardo logistics module is being processed by NASA in

KSC's Space Station Processing Facility (SSPF) with engineering support from the Italian Space Agency, Alenia Aerospazio and Boeing. Among the activities for the payload test team to prepare the module for launch are integrated electrical tests with other station elements in the SSPF, leak tests and electrical and software compatibil-

(See Leonardo, Page 3)

Building blocks to the future

The International Space Station (ISS) program has three distinct phases, each representing new milestones and capabilities.

Phase 1, which built joint space experience and began scientific research between the United States and Russian partners using existing facilities and resources, involved stays by U.S. astronauts aboard the Russian Mir Space Station. The Phase 1 partnership provided the United States with more than two "astronaut years" of space station operational experience.

Phase 2 — construction in orbit — will begin later this year with the launch of Zarya from Russia on a Proton rocket.

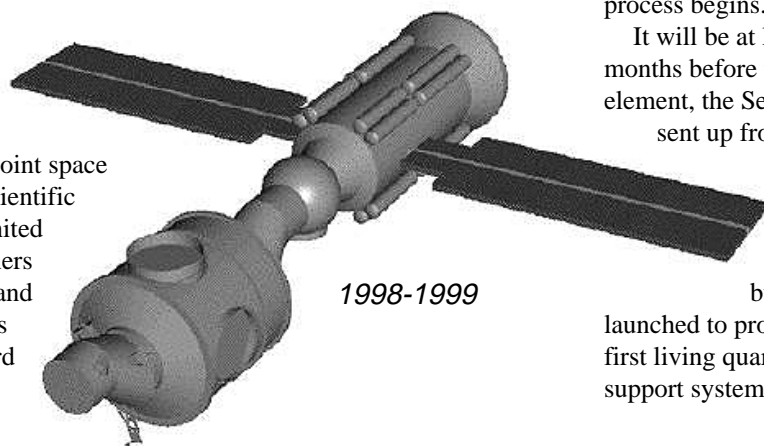
Zarya will provide attitude control and propulsion during the early assembly operations plus solar power and berthing ports for additional modules.

In December, the U.S.-built Unity connecting module is scheduled to be delivered by the Space Shuttle and attached to Zarya. Astronauts Jerry Ross and Jim Newman are scheduled to spacewalk to the fledgling space station and connect electrical cables between the two units.

Although assembly will begin with these two components, it will take 45 launches before the ISS is completed. The entire assembly sequence for the station calls

for flights launched by at least three different types of vehicles: the Space Shuttle, the Russian Proton rocket and the Russian Soyuz rocket.

Interestingly, with elements of the station coming from all around the world, many of the pieces will meet for the first time in orbit.



1998-1999

quiet period in the assembly process begins.

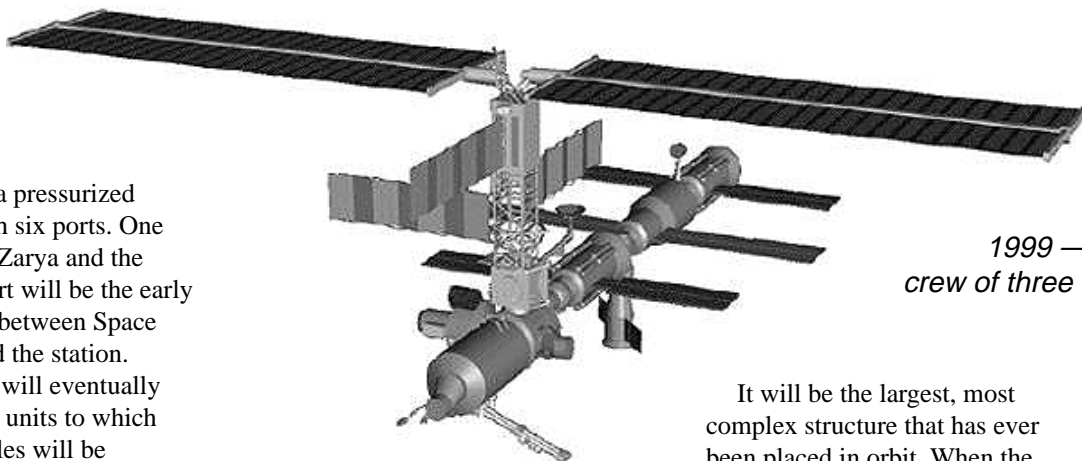
It will be at least several months before the third station element, the Service Module, is sent up from Baikonur. The

module, which is the first wholly

Russian contribution, will be launched to provide the station's first living quarters and life support systems. For the first

Captain and former SEAL Bill Shepard. He and two Russians will ride into orbit aboard a Soyuz spacecraft, which will be docked to the station and serve as an emergency rescue vehicle.

Phase 3 of assembly will see the International Space Station progress gradually to completion with a crew of up to seven members; laboratory modules supplied by Russia, Europe, Japan and the United States; and a robotic arm supplied by Canada.



1999 — crew of three

Unity is a pressurized module with six ports. One mates with Zarya and the opposite port will be the early connection between Space Shuttles and the station. Other ports will eventually get docking units to which more modules will be attached.

As the assembly continues, the node will sprout the long main truss holding the solar

few years of the station's construction, in fact, the crew will eat and sleep in the Russian Service Module.

After it is mated to the first two pieces of the ISS, the module's solar wings will then be deployed, doubling the electrical power capacity of the connected units.

After two more Space Shuttle assembly flights, a three-person crew will be launched

aboard a Russian Soyuz capsule to spend more than four months on the station.

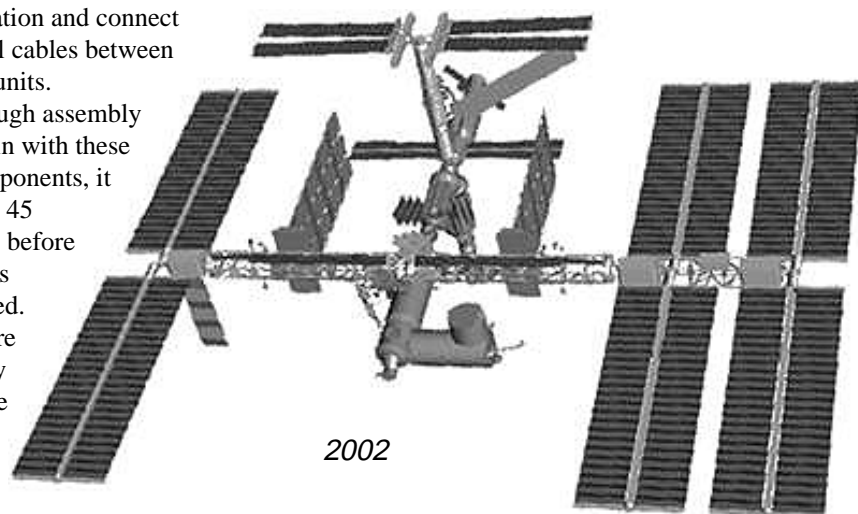
From that point on, the station will be permanently inhabited.

The station's first commander will be an American, Navy

It will be the largest, most complex structure that has ever been placed in orbit. When the International Space Station is completed in the year 2003, it will cover an area approximately the size of two football fields.

As an international crew of astronauts live and work in space, the ISS community will expand here on earth as researchers use the technologies of "telescience" to control and manipulate experiments from the ground. Advancing communications and information technologies will allow Earth-bound investigators to enjoy a "virtual presence" on board the ISS as they take their place in a world community that will use and benefit from an orbiting laboratory.

The station will maximize its own unique assets: prolonged exposure to microgravity and the presence of human experimenters in the research process. Yet the ISS is much more than just a world-class laboratory in a novel environment; it is an international human experiment



2002

arrays and thermal radiators, a U.S. science laboratory, a habitation module where the astronauts and cosmonauts eat and sleep, and other modules.

After the orbiter Endeavour leaves the mated Zarya and Unity behind, the longest

(See Blocks, Page 3)

Blocks ...

(Continued from Page 2)

— an exciting “city in space” — a place where we will learn how to live and work “off planet” alongside our international partners.

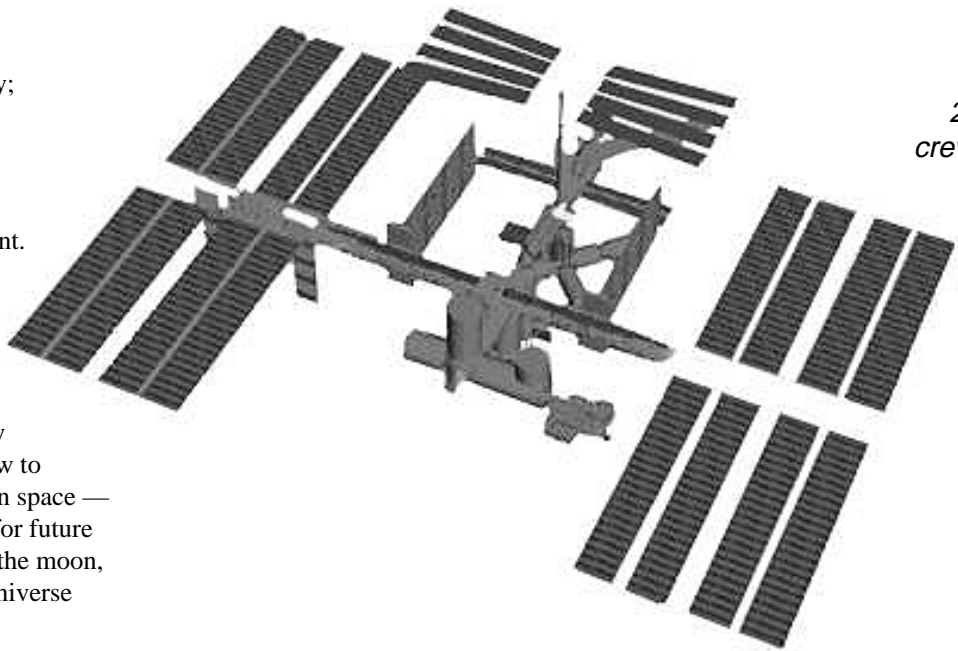
Our city in space will include as its citizens the international cadre of astronauts and the researchers whose virtual presence will make the incredible breadth of ISS research possible.

This ambitious human experiment in our city in space will play out as the ISS executes its concurrent roles as:

- an advanced testbed for technology and human exploration;

- a world-class research facility; and
- a commercial platform for space research and development.

Built by a partnership of 16 nations, the station will be a giant laboratory for learning how to live and work in space — in preparation for future human trips to the moon, Mars and the universe beyond.



2003 —
crew of six

ISS Assembly Sequence for Phase II

Date	Flight	Launch Vehicle	Element(s)
Nov 1998	1A/R	Russian Proton	Zarya (Functional Cargo Block, or FGB)
Dec 1998	2A	Space Shuttle STS-88	Unity connecting module (1 stowage rack) 2 Pressurized Mating Adapters (PMAs)
Apr 1999	1R	Russian Proton	Service Module
May 1999	2A.1	Space Shuttle STS-96	Spacehab Double Cargo Module
June 1999	3A	Space Shuttle STS-92	Integrated Truss Structure (ITS) Z1 PMA-3 Ku-band Communications System Control Moment Gyros
July 1999	2R	Russian Soyuz	Soyuz
Aug 1999	4A	Space Shuttle STS-97	Integrated Truss Structure P6 Photovoltaic Module Radiators
Oct 1999	5A	Space Shuttle STS-98	U.S. Laboratory Module
Dec 1999	6A	Space Shuttle STS-100	Multi-Purpose Logistics Module Ultra High Frequency antenna Space Station Remote Manipulating System (SSRMS)
Jan 2000	7A	Space Shuttle STS-101	Joint Airlock High Pressure Gas Assembly

Leonardo ...

(Continued from Page 1)

ity tests with the Space Shuttle using the Cargo Integrated Test Equipment and an Interface Verification Test once the module is installed in the Space Shuttle's payload bay at the launch pad.

NASA's Marshall Space Flight Center, Huntsville, Ala., provided the module's hardware development engineering oversight.

The most significant mechanical task to be performed on Leonardo in the SSPF is the installation and outfitting of the racks for carrying the various experiments and cargo.

Leonardo provides interfaces for up to 16 racks, five of which also furnish power, data and fluid support to a refrigerator-freezer.

The racks will be installed into the module using an efficient piece of robotic equipment called the Rack Insertion Device, developed by Kennedy Space Center engineers for fast and easy installation and removal of the racks and rapid turnaround of the logistics module between missions.

Leonardo is the first of three MPLMs to be furnished to the International Space Station program by the Italian Space Agency.

Raffaello is scheduled to arrive at KSC next year and Donatello in 2001.

Leonardo will be launched aboard Space Shuttle Endeavour on mission STS-100 currently planned for December 1999.

NASA awards more Shuttle work to USA

NASA's Johnson Space Center in Houston has modified its contract with United Space Alliance (USA) to include more than \$900 million in work on the Space Shuttle's booster assemblies and other Shuttle elements.

USA is the prime contractor for the Space Shuttle fleet operations.

This \$919.5 million cost-plus-award-fee/incentive-fee contract modification includes work previously performed under three separate NASA contracts: work on the boosters performed by USBI at Kennedy Space Center; design and production of primary Shuttle avionics software by Lockheed Martin in Houston; and processing of flight crew equipment, including space suits, personal equipment and tools, performed by Boeing Aerospace Operations in Houston.

The new work comes under Phase 2 of NASA's space flight operations contract (SFOC) with USA.

During Phase 1 of the SFOC, NASA assigned responsibility for work done previously under 12 different Space Shuttle contracts to USA in order to improve efficiency and reduce overall cost.

"The Shuttle is still a national resource, the funding for which is all part of the federal budget process," said Bob Sieck, NASA's director of Shuttle Processing, "so we have to know how much it's going to cost to operate the Shuttle as a program on a year-by-year



USBI technicians in the Parachute Refurbishment Facility stow the line of a main parachute pack. The two Shuttle solid rocket boosters are each equipped with three reusable 136-foot-wide main parachutes that slow their descent into the Atlantic Ocean after launch. USBI, as a subcontractor to USA, is responsible for the parachute refurbishment process.

basis so we can go get that money. It's a piece of the NASA budget.

"Clearly, if the operating expenses of the Shuttle program can be decreased by partnering the requirements between government and private industry," he continued, "then the NASA budget has more flexibility for research, technology and other initiatives that the Agency wants to pursue."

The assumption of these three contracts is part of the planned

Phase 2, during which the responsibility for work from eight different contracts for major Space Shuttle elements has been planned for transfer to USA.

USBI, which is responsible for the assembly, testing and refurbishment of the non-motor elements of the solid rocket boosters (SRBs), joined the USA team as a subcontractor.

The work will be folded into the prime contract at the end of the current contract term in October 1999, when the USBI staff performing this work are scheduled to become USA employees.

Lockheed Martin flight software personnel, who develop the Primary Avionics Software System used to fly the Space Shuttle, and Boeing flight equipment employees, who process food, clothing and personal hygiene items for the Shuttle crews as well as the extravehicular space suits and training and mission equipment, became USA employees July 4.

While Phase 1 of SFOC, which became effective October 1996, focused primarily on operational aspects of Shuttle processing, Phase 2 also includes developmental work in progress. This

includes research and development related to the external tank, the solid rocket boosters, the Space Shuttle main engines and the orbiter.

"The whole purpose of the SFOC contract was to integrate all of these elements into one operational entity when development work was finished," said Sieck. "Some of these elements are undergoing significant development changes, and it didn't make sense to transition them at the same time we transitioned operations for the orbiter."

Later in the Phase 2 performance period, Shuttle-related work at NASA's Marshall Space Flight Center and at Stennis Space Center also will be folded into the USA contract.

At Kennedy Space Center, however, changes at this time resulting from this stage of SFOC are only organizational. Daily operations continue as usual on work related to the booster assemblies performed by USBI.

The boosters include a forward skirt assembly, an aft skirt assembly, and an exit cone.



Hangar AF at Cape Canaveral Air Station is where solid rocket boosters are taken and initially washed after recovery from the ocean following each Space Shuttle launch.

(See USA, Page 5)

USA ...

(Continued from Page 4)

"We call the middle four segments that Thiokol produces the solid rocket *motors*," said Sieck, "but the *booster assemblies*, which include the forward end and the aft end, are produced by USBI. When we put the motors and the booster

rocket motor operations also will transition to USA under the terms of the Space Flight Operations Contract. The motor components do not include the forward and aft skirt assemblies.

The Phase 2 performance period runs through Sept. 30, 2002, and will include consolidation of an additional 15 contracts as part of a

Aerial view of the Assembly and Refurbishment Facility (ARF)



assemblies together, we call the final product the solid rocket boosters, or SRBs."

The forward skirt assembly and the aft skirt assembly contain electrical, electronic, hydraulic, ordnance, and other mechanical systems and subsystems that provide controls and devices for guidance, range safety, flight, and recovery of the solid rocket boosters. Each assembly is completely disassembled, down to the frame or shell, at Hangar AF at Cape Canaveral Air Station.

The assemblies and their components are refurbished, inspected, and tested in the shops at NASA's Hangar AF and Hangar N facilities.

The SRB recovery parachutes are sent to the Parachute Facility, where they are cleaned, repaired, inspected, and repacked.

KSC's Assembly and Refurbishment Facility is utilized to continue the refurbishment and buildup process. This includes the Aft Skirt Test Facility, which is used to perform comprehensive testing and inspections on the thrust vector control system. These tests simulate actual commands and SRB movements during launch and ascent.

Other operations include re-installation of all flight components for SRB forward and aft skirt assemblies, system integration, inspection, and final test for flight status prior to transfer to USA.

In October 2000, Thiokol's solid

continuing NASA effort to transfer day-to-day Shuttle operations from government employees to private companies. Contractor and NASA performance to date during the

PGOC gets a boost

The Boeing Company's Payload Ground Operations Contract, or PGOC, recently was awarded a \$12.8 million change order by NASA to provide engineering services for the Agency's expendable launch vehicle program.

The work will be done for KSC, named NASA's lead center for the acquisition and management of expendable launch vehicle (ELV) launch services.

"We are independent evaluators for NASA," said Marisa Achée, program manager for the Boeing

expendable launch vehicle services, "providing engineering, operational and developmental expertise for expendable rockets."

Achée's team will provide KSC's ELV Program Office with the additional technical and engineering support required for a successful mission. She is in the process of hiring approximately 30 people whose expertise will include mechanical and electrical engineering, mission analysis and guidance and navigation and control systems.

SFOC transition has been outstanding, according to Sieck.

"We've saved money and just look at the track record of safe and successful missions since January of last year," he said. "That's a credit to both NASA and USA as

well as its subcontractors. We're meeting launch dates predictably and performance is very good."

Following Phase 2, there will be several years of additional options to the Space Flight Operations Contract.

X-33 launch site nears completion



This overall shot of the 25-acre X-33 launch site, taken from Haystack Butte at Edwards Air Force Base, Calif., shows the site nearing completion. The photo was taken July 31. Construction crews recently erected the 250-foot water tower, left, which holds 250,000 gallons of water and will supply the water deluge system at launch. Other recent additions to the site include the white pressurized tanks for the liquid hydrogen and liquid oxygen that eventually will supply the X-33's linear aerospike engines, and the translating shelter, right, which will house the X-33 while it is serviced horizontally prior to each launch. The launch site is scheduled for completion this fall. The first of 15 test flights for the X-33 is scheduled to take place in July 1999.

Vision ...

(Continued from Page 1)

project manager for the Vision Spaceport Project as well as government co-chair for the Spaceport Synergy Team, presented copies of the JSRA agreement to the key partners: Roy Bridges for Kennedy Space Center; Dr. Michael S. Freeman for NASA Ames Research Center; Bruce Melnick for Boeing-KSC; Kevin Brown for Command and Control Technologies Corporation; Ron Wetmore for Lockheed Martin-Michoud Space Systems. Another partner, Parri Engelson with Science Applications International Corporation, was unable to attend.

McCleskey noted that "the nation needs to engender space business growth by enabling the space launch industry to develop commercially affordable space transportation systems, including definition of modern spaceport infrastructures. In compliance with the nation's space policy, we are moving the focus from our current role as launch service provider to one of space launch technology research and development in support of our customers.

"This Vision Spaceport JSRA outlines the collaborative activities for initiating architectural development of revolutionary spaceports by first producing the needed benchmarks, the tools and the vision," he



Key partners in the Joint Space Research Agreement include, left to right, Bruce Melnick, vice president, Payload Ground Operations, Boeing; Ron Wetmore, director, KSC External Tank Operations, Lockheed Martin-Michoud Space Systems; JoAnn Morgan, associate director for Advanced Development and Shuttle Upgrades; Roy Bridges, center director; Kevin Brown, vice president of Business Development, Command and Control Technologies Corporation; Loren Shriver, deputy director for Launch & Payload Processing; Dr. Michael Freeman, Ames Research Center.

continued. "By December 1998, these initial products, which do not exist in useful forms today, will allow us to better understand the interactions that occur between flight systems and their required supporting launch infrastructure."

McCleskey introduced Center Director Roy Bridges, who spoke to the assembled

group about the need for the project.

"People are starting to talk about a national spaceport but don't know what it looks like," said Bridges. "We should all have a clear and common vision so that when we go to Washington we all talk about the same thing."

Bridges stressed that any one organization attempting such a project on its own would fail, yet with each partner providing resources, the project will succeed.

The annual plan presented at the meeting included task assignments and milestones for each partner organization.

It also identified 12 primary functional facility modules to be addressed:

- Payload/Cargo Processing
- Traffic/Flight Control
- Launch
- Landing/Recovery
- Vehicle Turnaround
- Vehicle Assembly/Integration
- Vehicle Depot Maintenance and Overhaul
- Spaceport Support Infrastructure
- Concept-Unique Logistics
- Transportation System Operations Planning and Management
- Expendable Element
- Connecting/Community Infrastructure

The project schedule in the annual plan shows a final report on the Vision Spaceport study is expected in the first quarter of 1999.

August employees of the month



Honored in August: From left are Klaus Staefe, Installation Operations; Patricia Leonard, Office of the Chief Financial Officer; Jennifer Kunz, Space Station Hardware Integration Office; Gladys Escobar, Procurement Office; Dale Lueck, Design Engineering; Sandy McCandless, Logistics Operations; and Larry Lilly, Checkout and Launch Control System Office. Not shown are Becky Fasulo, Payload Processing; Linda Ackroyd, Safety and Mission Assurance; Mike Hill, Administration Office; and Chris Weaver, Shuttle Processing.

Move, clean, cut, spackle, tape, paint, care!

Join KSC's NASA and contractor team in "Sprucing up for Seniors" during this year's Days of Caring project to paint Baxley Manor in Merritt Island. Baxley Manor is a building of low-income resident apartments for senior citizens.

The project involves painting inside the apartments.

Teams will consist of movers, cleaners, cutters, spacklers, tapers, painters, counselors, customer service representatives, and tour escorts.

Information and registration forms will be sent via internal mail to all KSC employees in mid-August. Employees need to register by Friday, Aug. 28, in order to participate in the Days of Caring on Friday, Sept. 11, and Saturday, Sept. 12.

Staff who volunteer should receive an information packet with details regarding the project and other volunteer opportunities in the area by Sept. 4.

NASA employees are eligible for four hours of administrative leave to participate.

KSC's Community Relations Council is seeking 200 volunteers to participate in the four-hour shifts on either or both of these days.

There will be three shifts of teams on both Friday and Saturday starting at 8 a.m., 10 a.m. and noon. Team duties include:

- the Advance/Cleanup Team will remove personal items from walls, move furniture to the center of the room and cover it with plastic. When painting is finished, this team will come back and remove the plastic, move furniture back in place and replace personal items;

- the Prep Team will wash walls and baseboards, spackle holes, remove light switch plates, tape off around doorways and windows, cover floor surface with plastic and cut in (paint) around doorways and windows;

- the Paint Team will paint the walls in the living areas only. No kitchens, bathrooms or closets will be painted;
- and the Customer Service Team will provide assistance to team leaders such as

renewing supplies, coordinating small repair jobs and cleaning windows and ceiling fans.

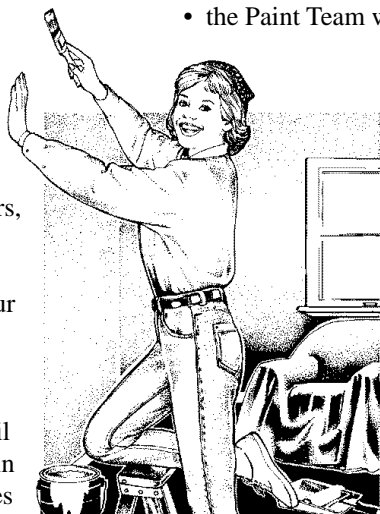
Counselors are needed to assist the senior citizens with their emotional needs of the day. This will probably involve talking with them, playing card games or shuffleboard and assisting them through the overall 'commotion' of the day.

The Escort Team will provide companionship and information to senior citizens who decide to tour the KSC Visitor Complex while their homes are being painted.

Hosts will be needed to help serve refreshments to all participants.

Each person's name will appear in *Florida Today* to thank them for participating.

If you have questions or would like more information about Days of Caring, contact either Cindy Coddington at helen.coddington-1@ksc.nasa.gov or Elizabeth Osborne at elizabeth.osborne-1@ksc.nasa.gov.



Mark your calendars for Open House!

The 1998 KSC Open House for space center employees and their guests will be held Saturday, Oct. 10 from 9 a.m. to 3 p.m.

This year's event will be held in honor of NASA's 40th anniversary. Highlights of the day's activities are scheduled to include a drive-by viewing of the Space Shuttle Discovery

poised on Launch Pad 39B for the STS-95 mission, the new Space Shuttle Main Engine Processing Facility and a possible tour of a Shuttle Carrier Aircraft at the Shuttle Landing Facility.

Look for more details about Open House events in future editions of *Spaceport News* and *Countdown*.

What goes around, comes around

The Association for Retarded Citizens (ARC) in Brevard County first started assisting in KSC's recycling efforts in November 1997. Since that first effort of removing recyclable cans from 100 sites around KSC, the number of sites where ARC clients and supervisors make pick-ups has grown to more than 230.

"We would like the number of sites around KSC to reach 400," said Sharon Beverly, an engineer intern with the NASA Environmental Operations Office. "ARC has placed bins so no one has to walk far, and they have amended

the pick-up schedule to meet KSC's unique needs."

ARC's recycling bins, identifiable by the KSC Aluminum Can Program signs, are located in all major facilities. There are at least 28 in the Headquarters Building alone. ARC has also set up bins for recycling aluminum cans at KARS Parks I and II and will soon be setting up along the causeway between Cape Canaveral Air Station and KSC. ARC clients also provide janitorial services; assembly, packaging and mail preparation; as well as lawn care and parking lot maintenance.



Association of Retarded Citizen (ARC) clients Roger Thomforde (left) and Mike Konig (right) flank ARC supervisor Kathy Kent as they work together to collect aluminum cans for recycling at KSC's Headquarters Building. ARC clients recycled 952 pounds in May and 820 pounds in June of recyclable cans from Kennedy Space Center.

Frequently used or not, know your NOAA radio frequencies

In the event of a hurricane, know where to tune your weather radio to get the latest information. Transmitters that can be heard in Brevard County are in Melbourne, Orlando and

Daytona Beach. Choose the frequency that provides the best reception for your locale. In Florida, 162.400; 162.475; and 162.550 are the primary frequencies. In Melbourne, the best

reception is 162.440, but in the Titusville and Mims areas, 162.400 is better.

Weather radios that pick up transmissions from the National Oceanic and Atmospheric

Administration (NOAA) are available for purchase through local retailers.



X-34 technology demonstrator completes critical milestone

The first wing assembly for NASA's X-34 technology demonstrator has completed qualification tests and has been shipped to the prime contractor, Orbital Sciences Corporation, Dulles, Va., where it has been mated to the X-34 test article under construction there. Integration of the wing assembly with the test article fuselage marks a major milestone in the program.

Flights of the air-launched X-34 are scheduled to begin next year in conjunction with flights of its larger, more advanced sister ship: the X-33. The newly qualified X-34 wing assembly, intended for flight, has been installed, initially, on a full-scale X-34 test article at Orbital. The test article will be used for X-34 verification and certification. This first wing assembly will ultimately fly aboard one of two flight vehicles also under construction at Orbital. The sub-orbital X-34 and X-33 vehicles will demonstrate key technologies at high speeds and high altitudes, leading to the development of full scale, commercially operated reusable launch vehicles after the turn of the century. The ultimate objective of these efforts is to dramatically reduce the cost of placing payloads into space.



This is one artist's conception of the X-34, a technology demonstrator vehicle, which is being designed and developed by Orbital Sciences Corporation. The objective of the X-34 program, managed by NASA's Marshall Space Flight Center in Huntsville, Ala., is flight demonstration of key reusable launch vehicle operations and technologies directed at the RLV goals of low-cost space access and commercial space launch competitiveness. The X-34 will be launched from an L-1011 airliner and reach altitudes of up to 250,000 feet and speeds up to Mach 8 (eight times the speed of sound).

Farewell to former NASA News Chief

Richard Young, former chief of KSC's Media Services Branch, died Aug. 2.

Young began his career with NASA as a public information specialist in the NASA's Public Information Branch at KSC in 1969.

Six years later, he was promoted to news chief and in 1998, chief of the branch. He retired from NASA in 1994.

Young graduated from Boston University with a law degree in 1953.

Prior to accepting his position as a public information specialist at KSC, he spent seven years with the *Orlando Sentinel* as a



Richard "Dick" Young columnist and as an aerospace and science writer.

Young also was the editor of *Spaceport News* from 1972 through 1974.

If the shoe fits, put a sock in it and run!



Mark your calendars for this year's Fall Intercenter Run slated for September 24 at 5 p.m. The 10K, 5K and two-mile run/walk at the Shuttle Landing Facility are all great ways to have some

fun and friendly competition with your co-workers. Watch *Spaceport News* and

Countdown for more details.



John F. Kennedy Space Center

Spaceport News

Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by the Public Affairs Office in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, AB-F1. E-mail submissions can be sent to Susan.Maurer-1@ksc.nasa.gov

Managing editor. Bruce Buckingham
Editor. Susan Maurer

Editorial support provided by Sherikon Space Systems Inc. Writers Group.
NASA at KSC is on the Internet at <http://www.ksc.nasa.gov>

USGPO: 633-112/80012